

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Buchardt, et al.

Confirmation No.: **5682**

Application No.: **10/691,012**

Group Art Unit: **1631**

Filing Date: **October 22, 2003**

Examiner: **Michael L. Borin**

For: **PEPTIDE NUCLEIC ACIDS**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF RICHARD S. GEARY, Ph.D.

Richard S. Geary hereby declares and states:

1. My qualifications in the field of biochemistry, specifically the biochemistry of oligonucleotide therapeutics, are set forth in my *curriculum vitae*, which is attached as Exhibit 1. I currently am the Senior Vice President of Development, Isis Pharmaceuticals, a position I have held since 2008. I completed my graduate studies in Pharmaceutics in 1988 by receiving my Ph.D. degree from the University of Texas at Austin. Following roles as research scientist (1987-1990) and senior research scientist (1990-1992) in the Pharmaceutics and Pharmacology Section, Department of Applied Chemistry and Chemical Engineering at the Southwest Research Institute, I became the Group Leader (1992-1993) of the Pharmaceutics and Pharmacology Section and then Manager (1993-1995). of the Applied Biopharmaceutics and Physical Chemistry Section. I joined Department of Toxicology and Pharmacokinetics within Isis Pharmaceuticals in 1995, and held a series of positions of increasing responsibilities as Assistant Director of Pharmacokinetics (1995-1997), Associate Director of Pharmacokinetics (1997-1998), Director of Pharmacokinetics (1998-2001), and Executive Director of Pharmacokinetics (2001-2003) before assuming my current role.

I have authored or co-authored more than 80 peer-reviewed journal articles, reviews, or book chapters, and am an inventor on more than a dozen patents or patent applications in the field of oligonucleotide chemistry.

2. I have been informed that this declaration will be submitted in connection with the examination of U.S. Patent Application Ser. No. 10/691,012 ("the 012 Application"). I understand Isis Pharmaceuticals, my current employer has an interest in this patent application. I do not expect to be compensated beyond my normal compensation for the time I have spent in connection with this declaration. I do not have a direct financial interest in any patent which issues from this application, though I do own shares of Isis stock.

3. I have reviewed the 012 Application (in the form of U.S. Patent Publication 2006/0160731A1), an Office Action dated October 8, 2010, with respect to the 012 Application, and the claims (attached as Exhibit 2) that I understand to have given rise to that Office Action. I consider myself to be familiar with the level of skill in the technical field to which these claims relate, both now and in 1991.

4. The 012 Application states that its disclosed compounds can be administered in a variety of ways, including parenterally using sterile aqueous solutions (see, for example, paragraphs 141-147). Based upon my experience with compounds of this type, I believe that a person working in the field in 1991 would have been able to administer such a formulation to a mammal and would have had a reasonable expectation of achieving at least some measurable effect. This is consistent with disclosure found in U.S. Patent No. 6472209, to Richelson, which describes administering such compounds to animals in, for example, physiological saline (see, for example, column 6, lines 33-60 and Example 2, columns 13-15).

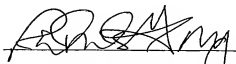
All statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. These statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that

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Office Action Dated: October 8, 2010

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such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

January 7, 2011


Richard S. Geary, Ph.D.